



HUB CITY

Parallel Shaft Reducers

LUBRICATION AND INSTALLATION

IMPORTANT INFORMATION

Read ALL instructions and safety precautions prior to operating unit. Injury to personnel or unit failure may be caused by improper installation, maintenance, or operation.

Check to verify that the application does not exceed the capacities published in the current catalog.

Written authorization from HUB CITY is required to operate or use gear units in man lift or people moving devices.

The system of connected rotating parts must be free from critical speed, torsional, or other type vibration, regardless of how induced. The responsibility for this system analysis lies with the purchaser of the gear unit.

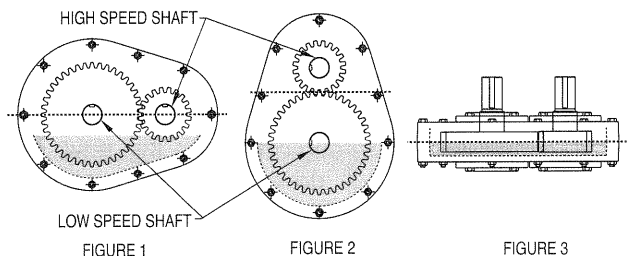
Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which the buyer shall apply the product. The application by buyer shall not be subject to any implied warranties of merchantability or fitness for a particular purpose.

LUBRICATION

CAUTION

ALL PARALLEL SHAFT REDUCERS EXCEPT MODEL 251 AND 254 ARE SHIPPED DRY AND OIL MUST BE ADDED PRIOR TO OPERATION. MODELS 251 AND 254 ARE PERMANENTLY LUBRICATED AT THE FACTORY FOR UNIVERSAL MOUNTING EXCEPT FOR VERTICAL SHAFTS. FOR VERTICAL SHAFT APPLICATIONS CONSULT FACTORY.

All HUB CITY Parallel Shaft Reducers are splash lubricated. Figures 1, 2, and 3 indicate oil levels for three basic mounting positions. Shaded area indicates the recommended oil level when input speeds **are greater than 800 RPM**. Dashed lines indicates the recommended oil level when input speeds **are less than 800 RPM**. Always determine mounting



position before installing lubricant.

NOTE: When Reducer is mounted so that shafts are in a vertical position (Figure 3), see "Variations From Normal Conditions".

BEFORE OPERATING — Remove uppermost plug and fill Reducer with an approved lubricant as shown on page J-52. Clean threads on removed plugs and plug holes with degreaser; coat with thread sealant and install securely into Reducer case. If fill, level and drain plugs are not located conveniently for your mounting position, additional plugs may be installed.

CAUTION

Do not operate the unit without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, unit, or other equipment may result.

CHANGING LUBRICANT — After the first 100 hours of operation, drain out initial oil, flush out the gear case with an approved nonflammable, non-toxic solvent and refill. Thereafter, oil should be changed at least every 2500 operating hours or every 6 months — which ever comes first.

CAUTION

Oil should be changed with greater frequency if unit is used in a severe environment such as dusty or humid.

! WARNING!

Oil housings, and other components can reach high temperatures during operation, and can cause severe burns. Use extreme care when removing lubrication plugs and vents while servicing the unit.

VARIATIONS FROM NORMAL CONDITIONS — When operating High Speed Shaft (Figures 1, 2 and 3) at speeds above 1800 RPM or below 400 RPM, special adjustment in oil level may be required. Consult the HUB CITY Sales Office nearest you for recommendations. If either shaft is in a vertical position or inclined more than 15°, zerk fittings may be required to lubricate upper bearings. It may also be necessary to make some oil level or plug modifications. Consult your HUB CITY Sales Office.



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LUBRICATION AND INSTALLATION

INSTALLATION



WARNING!

SHIELD ALL ROTATING PARTS

For safety, purchaser or user must provide protective guards over all shaft extensions and any moving apparatus mounted on the unit. The user is responsible for checking and complying with all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.



WARNING!

Wear protective clothing and eye shields when installing or maintaining unit and machine.



WARNING!

A unit cannot be used as an integral part of a machine superstructure which would impose additional loads on the unit other than those imposed by the torque being transmitted, or by any shaft mounted power transmitting device such as sprockets, pulleys, or couplings.



WARNING!

Units **ARE NOT** to be considered fail safe or self locking devices. If these features are required, a properly sized, independent holding device must be utilized. Reducers are not to be used as a brake.



WARNING!

Any brakes that are used in conjunction with a unit must be sized or positioned in such a way so as to not subject the unit to loads beyond the capacities published in this catalog.



WARNING!

Make certain that all tools and other items are clear from rotating parts before starting machine. Stand clear, and start machine slowly to be sure all components are secure and operating properly.



WARNING!

Make certain that the power supply is disconnected before attempting to service or install the unit, or remove or install any components. Lock out the power supply and tag it to prevent unexpected application of power.



WARNING!

For safe operation and to continue the unit warranty, when installing, reinstalling, or replacing a factory installed fastener for servicing purpose, or accommodate the mounting of guards, shields or other light load imposing devices or for mounting the unit, it becomes the

responsibility of the purchaser or user to properly determine the quality, grade of fastener, thread engagement, load carrying capacity, tightening torque, and the means of torque retention.

The basic design of HUB CITY Parallel Shaft Reducers allows operation in virtually any position. However, if your Reducer has a fill/breather plug and/or pipe plugs, the ideal position would be: Fill/breather plug at the top of the Reducer, drain plug at the bottom of the Reducer and a level plug located where oil level is desired according to shaft position and input speed.

Because mounting positions can vary greatly along with the location and availability of plugs in certain model Reducers, it may be necessary to install additional plugs as needed or level gages in level plugs.

Power may be applied (drive shaft) to either the high speed or the low speed shafts providing that the high speed shaft does not rotate more than 1750 RPM. Shafts may rotate in either direction.

Because of varying requirements, mounting hardware is not supplied with these units. Good quality cap screws with lock washers should be used. Base and fasteners for motor and Reducer must be rigid enough to maintain alignment between Reducer and motor and between Reducer and couplings.

COUPLINGS — Flexible couplings to input and output shafts are recommended because they minimize bearing and gear wear caused by slight misalignment. Follow coupling manufacturer's recommendations for installation and shielding.

SHEAVES AND SPROCKETS — When mounting sheaves or sprockets, the center of the load should be located as close to the Parallel Shaft Drive as possible. Excessive overhung loading could result in early failures of bearing or shaft. Refer to the general catalog or contact your local distributor for overhung load ratings. Follow manufacturer's recommendations for installation and shielding.

CAUTION

Exterior threaded or through holes on this drive are for mounting the drive or drive accessories (couplings, sprockets, etc.). They are not to be used for lifting the drive or any driver/driven equipment.



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CAUTION

Inspect shafts and components for paint, burrs, or other imperfections before installing components. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to shafts, bearings, or gears.

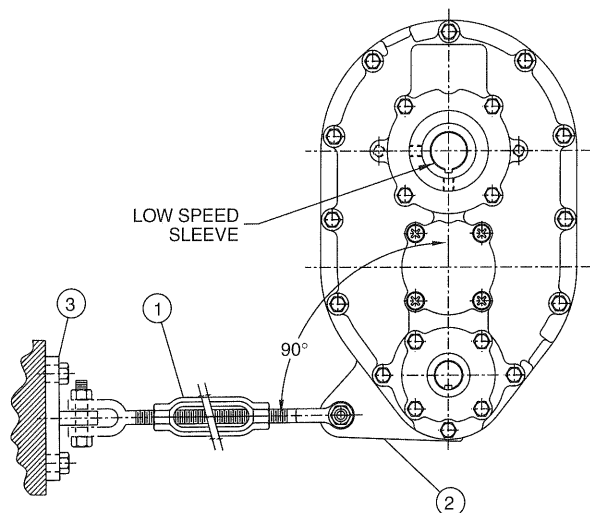


FIGURE 4

SHAFT MOUNTED REDUCERS—The driven shaft must extend through the full width of the Reducer and shaft should be independently supported with pillow block bearings, located as close to the the Reducer as possible.

A torque arm must be installed on shaft mounted Reducers to prevent unit from rotating. Figure 4 shows the suggested installation. A rigid torque arm will cause bearings to “load up”, causing excessive wear. To prevent this, provide a slight amount of “float” at the pivot point. Install Torque Arm so that it is approximately 90° to a line drawn through the low speed sleeve centerline and torque arm pivot point. Brackets must be fashioned by using a minimum of three attaching points on case.

No flexible coupling is required to connect low speed shaft on shaft mounted models but a clutch or torque limiting device is advisable somewhere in the drive train.

CAUTION

Test run unit to verify operation. If the unit being tested is a prototype, that unit must be of current production configuration.

PREVENTATIVE MAINTENANCE—Keep shafts and vent plug clean to prevent foreign particles from entering seals or gear case. Inspect periodically for oil leaks.

CAUTION

Mounting bolts, coupling fasteners, and other power transmitting devices should be routinely checked to ensure that all parts of the unit are firmly anchored to provide proper operation. Loose fasteners can cause alignment problems and excessive wear. Check end play in shafts. Noticeable movement might indicate service or parts replacement is necessary.

CAUTION

If the unit cannot be located in a clear and dry area with access to an adequate cooling air supply, then precautions must be taken to avoid ingestion of contaminants such as water, and to avoid a reduction of cooling ability due to exterior contaminants.

IMPORTANT INFORMATION

In the event of the resale of this Bevel Gear Drive (unit), in whatever form, resellers/buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

The manufacturer makes no warranty or representations, expressed or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitability meet the requirements of their intended use. In no event will manufacturer be liable for consequential, incidental, or other damages.

Resellers/buyers agree to include this entire document, including the warnings and cautions listed herein, in a conspicuous place and in a conspicuous manner to instruct users on the safe usage of the product.

HUB CITY has Sales Offices and a network of Industrial Power Transmission Distributors that can serve your needs worldwide. Check the Yellow Pages for one near you or contact the factory sales office.



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HUB CITY

Gear Drive

ELECTRIC MOTOR AND HYDRAULIC MOTOR AND PUMP INSTALLATION INSTRUCTIONS For "C" Flange and Hydraulic Flange Units

1. Be sure all of the paint and masking have been removed from the face and pilot of the flange. Check the bore (input or output) to be sure it contains an adequate amount of anti-sieze compound, which is normally installed at the factory. This compound will inhibit fretting corrosion between the motor or pump shaft and the unit bore.
2. Install the key (if round bore) to the maximum depth of the keyway provided in the bore.
3. Align keyways or splines of motor or pump and bore of unit and install motor or pump into frame.
4. **CAUTION:** HUB CITY "C" flange reducers and Hydraulic Flange Reducers are designed to accept motors with shafts that do not exceed the maximum specified by the N.E.M.A. or SAE standards. If the motor or pump shaft bottoms out before the motor or pump flange seats against the reducer flange face, the motor or pump shaft length must be adjusted to N.E.M.A. or SAE standards.
5. Secure the motor or pump to the unit. Capscrews and lockwashers are provided with "C" flange units.
6. Tightening torques for mounting bolts are provided in the chart below.

CAPSCREW TIGHTENING TORQUE

Grade 5 Capscrews (dry, without lubricant)

Capscrew Size	Tightening Torque (Ft. - Lbs.)
1/4 NC	8
5/16 NC	16
3/8 NC	29
1/2 NC	71
5/8 NC	143
3/4 NC	251

A Parts List and Print for your Drive is available upon request. To obtain the proper Parts List and Print, you must accurately furnish the Assembly Number, Model Number, Ratio, Style and Shipping Code as shown on the metal tag attached to the Gear Drive.

For assistance, phone or write your Industrial Power Transmission Distributor, or the Factory Sales Office.



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